THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

of the

VILLAGE OF NEWCASTLE

COUNTY OF DURHAM

1965

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ONTARIO WATER RESOURCES

COMMISSION

Report on a

WATER POLLUTION SURVEY

of the

VILLAGE OF NEWCASTLE

in the

COUNTY OF DURHAM

Division of Sanitary Engineering

1965

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INTRODUCTION

On August 30, September 3, and September 7, 1965, a water pollution survey was performed in the Village of Newcastle. Surveys of this type are performed by the Ontario Water Resources Commission for the purposes of locating and recording sources of existing and potential water pollution. Where these sources are noted, recommendations concerning their abatement are made to the parties concerned.

A similar survey was made in 1958, at which time it was recommended that remedial measures be undertaken to exclude or properly treat sanitary waste discharges to the local tributary of Wilmot Creek.

Samples collected during this survey were submitted to the Ontario Water Resources Commission laboratory for analyses. The appendices to the report contain a tabulation of the laboratory results, and a map of the village showing the sampling point locations. Assistance was provided by the following officials:

Mr. F. B. Pidgeon, Clerk, Village of Newcastle;
Mr. J. A. Finlayson, Chief Public Health Inspector, Northumberland-Durham Health Unit;
Mr. W. Lonc, Public Health Inspector, Northumberland-Durham Health Unit.

VILLAGE OF NEWCASTLE

General

The Village of Newcastle is located in the County of Durham on Highway 2 near its intersection with Highway 35. According to the 1965 Municipal Directory, the assessed population is 1,345.

Water Supply

The municipal water works system was constructed as an OWRC project during 1961. Ground water is used as the source of supply. There is no treatment afforded the water. Storage is provided by a 150,000-gallon steel standpipe.

Surface-Water Drainage

Most of the surface waters in the municipality drain to Foster Creek. This watercourse which is a tributary of Wilmot Creek rises in the township north of Newcastle and flows through the village near its eastern boundary to join Wilmot Creek near its mouth at Lake Ontario. Some surface waters drain to Graham Creek which flows through a fringe area of the village. However, this creek is not of direct significance in a survey of drainage conditions in the village.

Sewage Disposal

Private septic tank systems and privies are utilized for the disposal of sewage in the village. New septic tank installations are supervised by the Northumberland-Durham Health Unit.

The sample collected at sample point number WLF 2.1-DP 2 is a drain which receives the effluent from the septic tank at the local hotel. The health unit is presently attempting to correct this problem. The presence of sanitary wastes is also indicated in the drain discharging to the creek and designated as sample point number WLF 2.1-DP 1. This may be due either to direct private connections to this drain or malfunctioning septic tank systems.

Considerations Re Sewage Works

Officials of the village are presently considering the construction of a sewage works system to serve the municipality. A resolution has been passed engaging the services of a consulting engineer to report on a possible municipal sewage works scheme.

Industry

The following are the principle industries located in the Village of Newcastle.

Name of Firm	Product
J. Anderson Smith Box Factory	Silverware cabinets
Newcastle Cement Block	Cement Blocks
Woodland Products	Furniture
Weyrich Karl Wood Specialties Ltd.	Furniture

Reportedly no industrial waste effluent is produced by any of the above industries.

Garbage Disposal

An abandoned gravel pit located in the township north of

the village is used for garbage disposal purposes. No problems have been reported concerning any effects which this site may have on water quality.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY RESULTS

The analyses employed in this investigation to assess the quality of surface waters and outfall discharges were biochemical oxygen demand (BOD), suspended solids, and the total coliform count.

The BOD of sewage, industrial wastes, or polluted waters is the oxygen required during stabilization of the decomposable organic material by aerobic biochemical action. A 5-day BOD determination with incubation at 20^{o} C is reported. A high BOD is indicative of organic or chemical pollution. A desirable upper limit in surface water is four (4) parts per million (ppm).

Suspended solids are reported in parts per million and indicate the measure of undissolved solids of organic or inorganic nature.

The total coliform count is employed to obtain an enumeration of coliform organisms, and the number is reported per 100 millilitres (ml) of the sample. The Membrane Filter Technique was used in the examination of these samples. The maximum limit of 2,400 coliform organisms per 100 ml. is the OWRC objective for the bacteriological quality of surface water in Ontario.

POLLUTION SOURCES INDICATED BY SAMPLE RESULTS

Satisfactory sample results were obtained from the samples of water taken from Graham Creek.

Excessive coliform counts were noted in the samples taken from points throughout Foster Creek as it flows through the municipality. These counts are undoubtedly influenced particularly by the presence of sanitary wastes in the surface-water ditch draining to the creek north of King Street.

No outfalls to the creek were noted downstream from Highway 2.

SUMMARY

A water pollution survey performed in the Village of Newcastle revealed that inadequately treated sanitary wastes are being discharged to a ditch which drains to Foster Creek. As a result of this contamination,counts in excess of OWRC objectives for water quality were noted in Foster Creek at various points throughout the village.

RECOMMENDATIONS

Officials of the Village of Newcastle should continue their endeavour to establish a municipal sewage works system.

Sewage disposal procedures at the local hotel should be corrected.

The source of contamination to the drain discharging to the ditch on the west side of Beaver Street should be located and corrected.

All of which is respectfully submitted,

District Engineer: J. K. Theil

Approved by: _____
J. R. Barr, Director,
Division of Sanitary Engineering.

Prepared by: M.M. Holy

/mh

VILLAGE OF NEWCASTLE

WATER POLLUTION SURVEY

Samples pertaining to Foster Creek

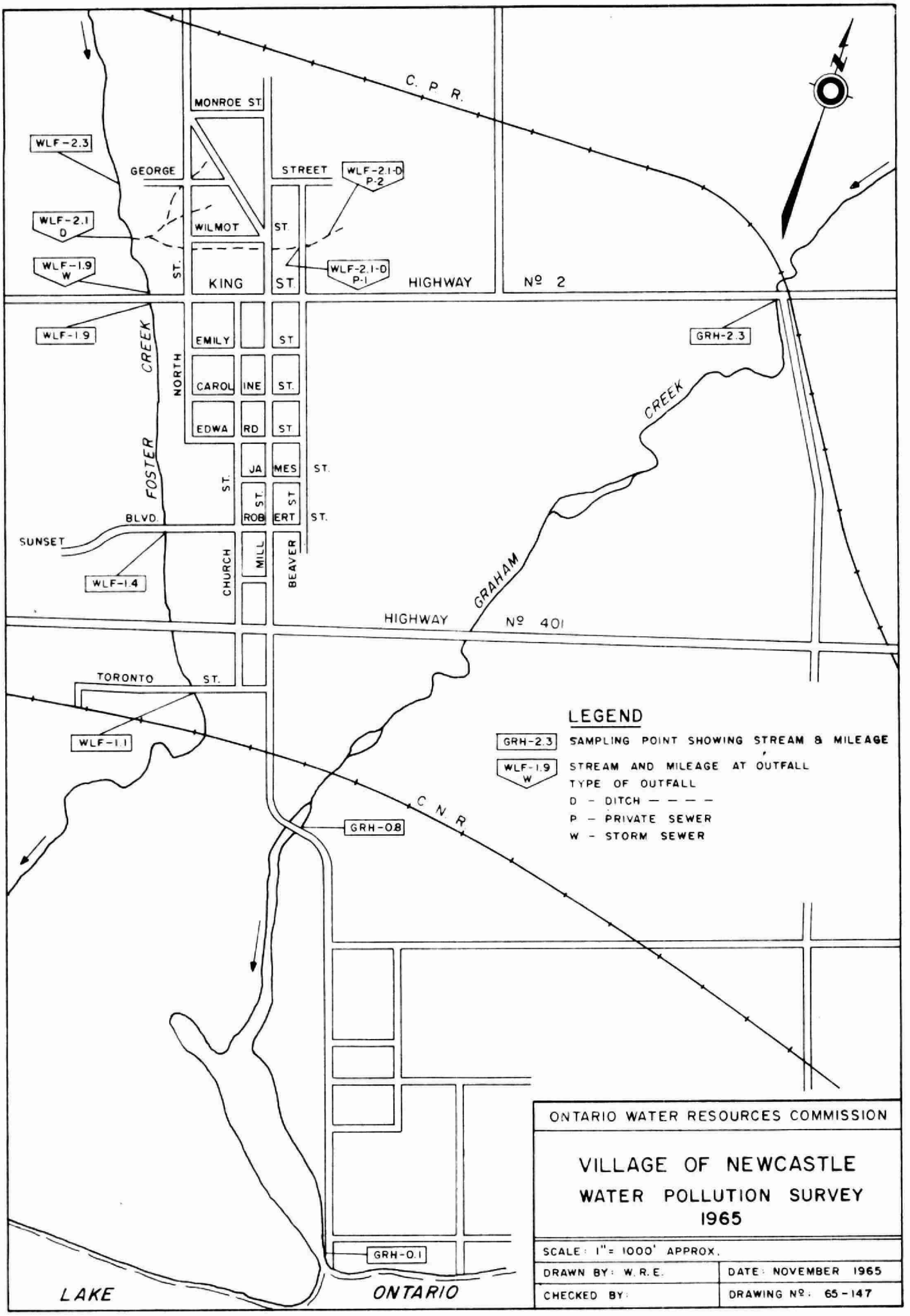
Sample Point No.	Description of Sampling Point	Date	Coliforms per 100 ml.	5-Day BOD	SOLIDS Total	SOLIDS Susp.	SOLIDS Diss.
WLF 1.1	Foster Creek at Toronto Street	Aug. 30/65	5,000	1.8	522	51	471
WLF 1.4	Foster Creek at Robert Street	Aug. 30/65 Sept. 3/65	10,000 6,500	2.0	368	33	335
WLF 1.9	Foster Creek at King Street (Highway 2)	Aug. 30/65 Sept. 3/65	7,900 70,000	0.8	522	13	509
WLF 1.9-W	Storm sewer outfall to Foster Creek - north side of King St.	Aug. 30/65		NO	FLOW		
WLF 2.1-D	Ditch flowing to Foster Creek north of Highway 2	Aug. 30/65 Sept. 7/65	150,000 37,000	1.2 3.2	576 698	17 88	559 610
WLF 2.1-D P-1	Private Drain discharging to the above ditch-west of Beaver Street	Sept. 7/65	3,300,000	41	1384	194	1190
WLF 2.1-D P-2	Private Drain discharging to the above ditch-east of Beaver Street	Sept. 7/65	34,000,000				
WLF 2.3	Foster Creek opposite George St. (upstream sample)	Aug. 30/65	8,000	1.4	560	102	458

VILLAGE OF NEWCASTLE

WATER POLLUTION SURVEY

Samples Pertaining to Graham Creek

Sample Point No.	Description of Sampling Point	Date	Coliforms per 100 ml.	5-Day BOD	SOLIDS Total	SOLIDS Susp.	SOLIDS Diss.
GRH 0.1	Graham Creek at mouth	Aug. 30/65	1,000	2.5	250	16	242
		Sept. 3/65	540				
GRH 0.8	Graham Creek at bridge one mile above mouth	Aug. 30/65	700	0.8	260	8	252
		Sept. 3/65	98				
GRH 2.3	Graham Creek at Subway on Highway 2	Aug. 30/65	1,000	1.3	246	4	242
		Sept. 3/65	108	1.5	212	6	206



ONTARIO WATER RESOURCES COMMISSION

VILLAGE OF NEWCASTLE
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1965

SCALE: 1" = 1000' APPROX.	
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